Artículo de investigación

Students' creative abilities development in higher educational institution

Desarrollo de habilidades creativas de los estudiantes en instituciones de educación superior

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Abstract

The main purpose of vocational training in higher education is training of a competitive highly qualified graduate. The requirements for his professional and creative level of development increase with increasing role of creative abilities in professional activities implementation. The purpose of the article is to describe experience of students' creative abilities development. The authors identified the stages of students' creative abilities development: organizational and preparatory; activity-evaluation; designing, during which students develop original projects, develop creative abilities and readiness for creative activity. The article describes the experience of project training in the branch of Tyumen industrial University in Surgut. The stages of project preparation "Drilling rig, combined with installation of a rod depth pump (hereinafter –RSP) are analyzed in detail. The paper also provides examples of project tasks performed by students in the study of pedagogical courses. Criteria for evaluating creative abilities were developed. In order to achieve high results, students plan their own individual activities and team activities in detail, make non-standard decisions during the project, show flexibility in resolving conflicts and originality of ideas. Modern high school, acting in terms of competence approach, using project activities, contributes to developing an independent and creative personality of future professional.

Resumen

El objetivo principal de la formación profesional en la educación superior es la formación de un graduado competitivo altamente calificado. Los requisitos para su nivel de desarrollo profesional y creativo aumentan con el papel cada vez mayor de las habilidades creativas en la implementación de actividades profesionales. El propósito del artículo es describir la experiencia del desarrollo de habilidades creativas de los estudiantes. Los autores identificaron las etapas del desarrollo de las habilidades creativas de los estudiantes: organizacionales y preparatorias; evaluación de actividad; diseño, durante el cual los estudiantes desarrollan proyectos originales, desarrollan habilidades creativas y preparación para la actividad creativa. El artículo describe la experiencia de capacitación en proyectos en la rama de la Universidad industrial de Tyumen en Surgut. Las etapas de preparación del proyecto "Plataforma de perforación, combinadas con la instalación de una bomba de profundidad de varilla (en adelante, RSP) se analizan en detalle. El documento también proporciona ejemplos de tareas de proyectos realizadas por estudiantes en el estudio de cursos pedagógicos. Criterios para evaluar habilidades creativas se desarrollaron. Con el fin de lograr altos resultados, los estudiantes planean sus propias actividades individuales y actividades de equipo en detalle, toman decisiones no estándar durante el proyecto, muestran flexibilidad para resolver conflictos y originalidad de ideas. Preparatoria moderna, actuando en términos de competencia El enfoque, utilizando actividades de proyecto,

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Keywords: Creative abilities, competence, competence approach, higher education institution, creative thinking, project method, project activity, originality.

contribuye al desarrollo de una personalidad independiente y creativa del futuro profesional.

Palabras clave: Habilidades creativas, competencia, enfoque de competencia, institución de educación superior, pensamiento creativo, método del proyecto, actividad del proyecto, originalidad.

Introduction

Radical changes in the sphere of higher education in Russia led to the development of creativity theme and creative abilities in training a competent specialist (Abramova, 2018). Modern high school operates within the competence approach, which promotes active development of students' competencies (Arkhipova, 2018). According to the competence paradigm, a modern graduate must be an independent and creative person in order to gain competitiveness in the labor market, since the employer needs personnel capable of adapting to working conditions as quickly as possible and making non-standard, most effective decisions during working process (Kutepov, 2017). For this purpose higher educational institution should develop students' creativity to master his creative component as much as possible (Nikonova, 2019a). Various educational mechanisms based on the principles of consistency, personal orientation and activity are involved in this process (Nikonova, 2019b). Consistency helps build logical and consistent process (Kamenez, 2019). Personal orientation is aimed at taking into account individual characteristics of students and helps to build a learning path (Markova, 2019). It is also very significant to take into account professional identity developed through the experience obtained in an educational institution specially arranged for these conditions (Sedykh, 2019).

For future teachers of vocational training it is necessary to react quickly to the changing conditions of social development and find appropriate ways to improve their own activities in order to develop students' relevant competencies (Smirnova, 2019). Their activities are linked to a dynamic environment, without which they will not be able to carry out work at a high level (Prokhorova, 2019). Flexibility, originality and quick thinking, which make up creative abilities, are an important part of graduates' future activities (Denysenko, 2018). Therefore, there is an objective need for development of creative abilities in modern educational conditions (Smirnova, 2017).

Student years is the period during which development of creativity of the individual achieves the highest results because the situation itself requires students to mental flexibility, the ability to see the situation from different sides and find all possible solutions to it (Smirnova, 2018). However, not all students are ready to think creatively and abandon templates when solving problems (Ilyashenko, 2019a). To solve this problem and activate the student position, higher education institutions use active teaching methods.

Literature review

Creativity is considered one of the fundamental characteristics of personality and is seen as the ability to be creativ due to the presence of logical thinking, originality of verbal associations, creative thinking and active imagination (Ilyashenko, 2018).

Creativity is also defined as totality of thought processes and personal abilities underlying creative activity (Ilyashenko, 2019b). Among the most important parameters of creativity is the ability to identify and pose problems; generating original, beyond stereotypical answers, solutions and uniqueness (Vaganova, 2019).

We can say that creativity in a competence-based approach is not only a potential ability to carry out creative activities, but also ability and willingness to find non-standard solutions to any issues and problems (Chaikina, 2018).

Creative abilities are the abilities of students which are manifested in the ability to perform work creatively and independently, expressed in specific products of activity (Natalie, 2019). It is worth to say that the ability is self-conscious performance of actions (Lubov, 2019). In pedagogy the problem of creative abilities

development involves searching for updated content, forms and methods of training, which are based on high activity of individual students (Myalkina, 2018).

Problems of creative abilities development were widely considered in the works of scientists: Ya. A. Ponomarev, V. A. Petrovsky, B. M. Teplov, I. V. Kozlov, D. Guilford.

The goal of developing creative abilities is defined by many scientists as free creative personality development of the future graduate (Markova, 2018). In connection with the intended purpose there are the following tasks: develop the ability to independently obtaining information; develop an ability to find unconventional solutions to various issues; the revival of interest in participating in creative activities, development of research abilities (Garina, 2018).

In the development of creative abilities several stages can be divided: organizational and preparatory (monitoring to identify the knowledge, skills and capabilities of students, inclusion students under teacher's guidance in research activities, development of skills to analyze and assess; understanding of readiness for creative activity, the creation of a teacher cooperative atmosphere); activity evaluation (organization of educational operations direct students creative tasks); design (the student is aware of his creativity and readiness for creative activity, the ability to design the most effective activities for the task, to predict the results) (Zhytukhina, 2017).

Many researchers focus on a person-centered approach to learning, as for the development of creative abilities, it provides variability in the content of educational material and individual form of learning, providing students with greater opportunities for self-realization (Vaganova, 2018). Among scientists there are those who consider the problem approach one of the best ways to enhance creative activity (Smirnova, 2017).

Both personal orientation and problem-solving are reflected in active teaching methods, which in turn are divided into imitation (building professional conditions in educational process) and non-simulation (activation of cognitive activity in lectures) (Makhometa, 2018). They are divided into simulation games (business games, project) and non-fiction (analysis of specific situations, the decision of situational tasks) (Ihnatenko, 2018). Creative abilities development is due to the inclusion in the solution of issues arising in the process of real professional activity.

Unconventional methods include lectures (problematic, dialog, lecture-visualization), discussions and workshops. In contrast to the simulation methods, stimulation of creative activity of the student occurs directly under the impact of the teacher.

The structure of creative abilities is defined in various ways, often as follows: motivation to solve problems, contradictions or lack of knowledge; specific actions to solve problems and contradictions; specific actions to test hypotheses and formulate the result of the decision.

The principles of problem-solving and personal orientation takes into account the implementation of the project method, which allows systematically and consistently develop the creative abilities of the student.

The project method combines all necessary components (motivational, informative, operational) to create conditions for the maximum development of creative abilities. The motivational component allows you to form an aesthetic need for creativity. In the course of the implementation of the content component in educational creative process, students learn the basics of acquiring experience of creative activity. The operational component reflects the process of implementing the project method, the tools used and the procedures for the creative application of knowledge. In the course of the project, students have enough freedom for self-realization and manifestation of independence, but the consulting, guiding role of the teacher does not allow them to go beyond the project, so this method allows achieving appropriate results.

Methodology

We analyzed the experience of students' creative abilities development in higher educational institutions in the study of the course "Pedagogical technologies". The activity of three groups of students (75 people) in the direction of training "Vocational training (by industry)"was analyzed. Students were offered to develop their own creative pedagogical project. In the preparation of the projects students actively demonstrate creativity, his artistic position. After completion of the project, students had to submit it for discussion in the classroom. During the defense of the projects, students demonstrated a

high level of knowledge of the material, used original solutions in the implementation of project activities, proved to be creative specialists capable of organizing any activity outside the box.

Analysis and discussion

Creative abilities development on the basis of the project method allows students to achieve high results by immersing them in the conditions that maximize their activity. Implementation of the project involves the inclusion of each student in the work. Both collective results of students' work and contribution to work of each individual student are evaluated.

For example, in May 2019 on the basis of the Surgut branch of the Tyumen industrial University held a seminar" the role of Mathematics in the development of a specialist." The seminar consisted of theoretical and practical parts. The theoretical part was presented by reports prepared by students of 1 and 2 courses, in the practical part of the seminar, students demonstrated their projects. Students group Adnb-17 as well as other students who presented the project "Drilling rig, combined with the installation of sucker rod pump. The reservoir is in the cut".

Preparation of the project consisted of several stages: search, design, technological and final.
The first stage (search) began with the fact that the goal was set – the development of the project that reflects the processes taking place in the oil field. This stage involved the search of ideas for making the layout closer to real CDG (workshop on oil and gas), and a search of relevant literature, including a description of all processes associated with the extraction and redistribution of extracted oil from the well. In the project it was decided to display such processes as: well drilling and oil production. In order to start working on the project, it was necessary to know how equipment used in the fields looks like; the principle of its operation; the path of fluids from the reservoir to the oil storage; the composition and section of the reservoir and so on. The key role of this phase was to allocate responsibilities for the development and preparation of the individual components of the project. At the end of the search phase, the project participants already had a sufficient amount of theoretical knowledge were divided into groups and got their further tasks.

This was followed by the design stage. At this stage, the group worked on the main part of the project - the development of the framework scheme (Fig. No. 1), design schemes usgn (Fig. No. 2) and the rig, the development of the basic design of the project, an approximate estimate of the cost of the entire project, the purchase of necessary tools and materials, and many others. At the end of this stage, the project participants had a clear idea of what the finished layout should look like.

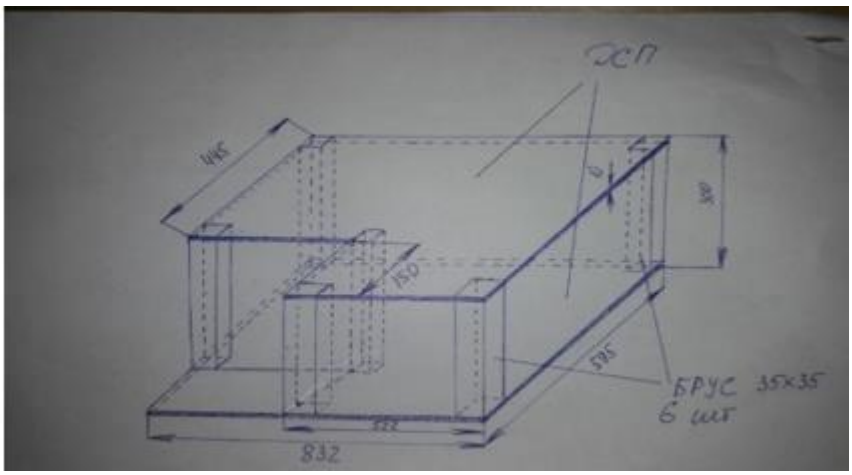

Figure 1 diagram of the frame of the project

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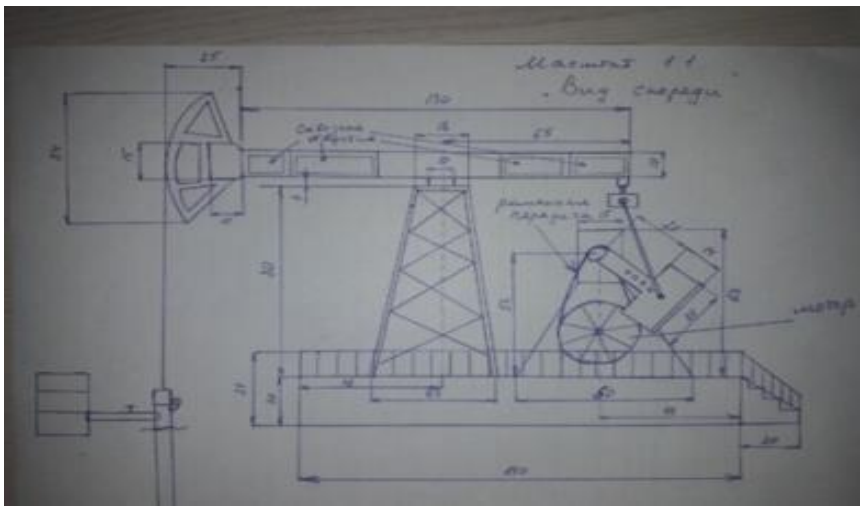

Figure 2 Scheme usgn

During the technological stage it was necessary to choose the materials and tools that were needed in the manufacture of the layout. For example, the frame was decided to be made of wood, and the drilling rig and rocking chair – from construction fittings. The frame was assembled (Fig. No. 3), the rig is welded and installed on the frame (Fig. No. 4), made and fixed ushgn (Fig. No. 5), held and related electronics for lighting and operation of drilling and usgn, developed and assembled the reservoir, from which oil was coming up the bore with impeller pump (Fig. No. 6) and much more. Thus, the result of this stage was an unformed working version of the project.

Figure 3 layout Frame in Assembly

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Figure 4 A drilling rig in the Assembly (layout)

Figure 5 USGN in the assembly (layout)

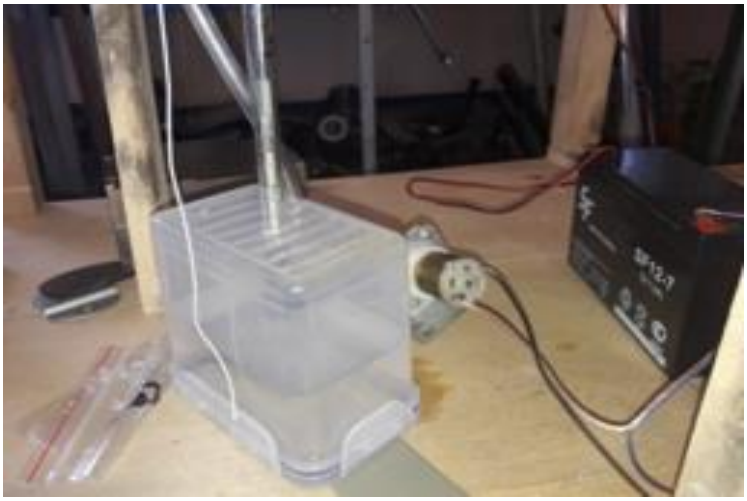

Figure 6 Reservoir assembly (vane pump)

At the final stage, the final design of the project took place-painting of all structures, design of the formation section (Fig. No. 7), decoration CDNG (Fig. No. 8), the addition of some decorative elements, and so on. At the same time, preparation for the presentation and protection of the project began –multimedia presentation preparation (video) reflecting all stages of manufacturing the layout from design to final design.

Figure 7 Decorated layer-manifold (in the context of)

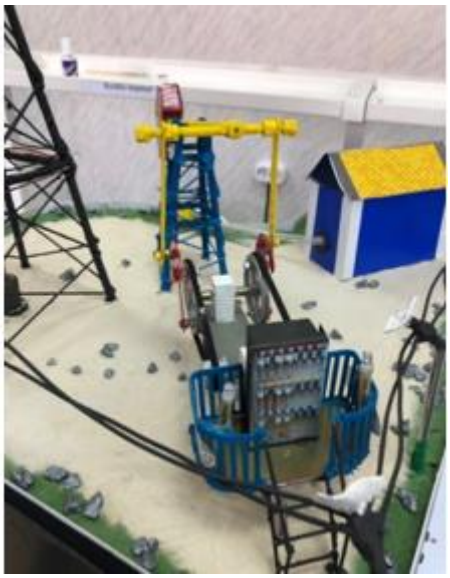

Figure 7 Territory CDG

The project method of training involves the development of theoretical part of a material and makes it possible to more clearly consider the stages of a process or phenomenon. This method is quite difficult to implement, but it contributes to the independent study, development and memorization of all necessary information. It is much more interesting for students to learn the specifics of the future engineering profession in this way, as thanks to the design method they form a deeper understanding of the processes that they will have to deal with in their professional activities. Student groups Ednb-17 took 1 place of honor among the projects presented at the seminar.

It should be noted that the use of the project method at the University provides more effective development of educational material and contributes to the development of creative engineering potential of students.

The method of projects allows students to show the acquired skills, to acquire the missing knowledge to achieve the result. The result in this case will be found a way to solve the problem (practical result). In the process of achieving the result, the student must form creative abilities.

Creative activity of the project nature is the most optimal mechanism for the effectiveness and the substantive basis of the process of actualization of the development of creative abilities of students.

Consider also as an example, the methodology of teaching the discipline "Pedagogical technologies" through the participation of students in project activities.

Students, creating original projects, have the opportunity to Express themselves as creative professionals. Classes in the course "Pedagogical technologies" using method of projects are among the most effective in the formation of creative abilities.

The subject of student projects has a very different orientation to maximize their creative component: organization of teaching at a private school; holding recitals in further education institutions; organization of volunteer

movement; organization of scientific fairs; conducting design exhibition.

Implementation of the project allows students to combine into a single whole the knowledge acquired earlier. During the project implementation, the student takes into account costs, deadlines, quality and human factor. Projects have a team-building effect on students, allowing them to increase their motivation for creative activity.

Each project has its own structure. The project "Organization of teaching activities in a private school" allows to reveal the creative potential of the student as the head of an educational organization (to feel the role of the Manager), to organize their own activities and activities of employees, to offer non-standard forms and methods of organization of teaching activities.

The activity of students is evaluated by several criteria: involvement in the development of the project; the proposal of new ideas, the reasonableness of the proposed innovations, active cooperation in the team.

Assessment of students ' activities in the project is made by project managers, as well as heads of departments within which the activity was carried out.

Thanks to the project, students develop the ability to creative interaction, conflict resolution within the team, develop communication skills, acquire skills to manage unforeseen problems and risks.

The project "holding creative evenings in the institution of additional education" reveals creative organizational skills. To implement the project, it is necessary to involve students in institutions of additional education, to determine the theme, to appoint the terms of preparation and holding of the event, to determine the order of rehearsals and performances. The activity of students is evaluated by project managers and creative groups of institutions of additional education according to the following criteria: compliance with the rules of preparation; activity of project participants; the degree of students involvement in institutions of additional education; reflexivity; compliance of the work situation of the project.

Project "Organization of volunteer movement". Students participate in the development of volunteer activities, offer new activities, determine their structure, sequence of implementation. Through participation in the project, students develop creativity, the ability to interact in a team, make independent decisions, argue their actions. The activity is evaluated by the project managers according to the following criteria: active participation in the development of the project; independence of decision-making; argumentation of their own position; the sequence of stages of construction of project activities; originality (the degree of use of existing samples).

Project "Organization of scientific fair". Students determine the theme of the scientific fair; attract participants; try to motivate students to participate; are accepting applications from those wishing to participate; engaged in the fair; present the results. During the development of the project, students develop the ability to logically build their own speech, develop the ability to motivate and arouse interest in participating in scientific activities, using their creative skills. The activity is evaluated by the project Manager according to the following criteria: consistency, consistency of presentation of information; originality; clarity and consistency of speech; emotionality (positive, neutral, negative); degree of involvement in the project; reaction to counterarguments.

The project "Carrying out design of the exhibition." During the implementation of the project, students acquire the skill of interaction in groups, get the ability to lead a productive conversation, learn to consistently build their own activities, solve problems in non-standard ways. The project is monitored by the manager, providing advice. The consulting role of the teacher provides a certain freedom in the performance of the task, so students fully feel the independence and responsibility for the work performed.

The activity of students is evaluated according to the following criteria: manifestation of cooperation skills; content of arguments; sequence of actions; originality of decisions, non-standard thinking.

The project method is one of the ways that have a positive impact on the formation of creative abilities of students. Often, higher education institutions choose it as a tool to develop an independent creative specialist.

Conclusion

The paper analyzes the main aspects of students' creative abilities development in higher

education. We have chosen the project method as a method of teaching which has the most active impact on the dynamic formation of creativity of students studying in the direction of "Vocational training (by industry)." The presented experience of students' creative abilities development in higher educational institution shows importance of project activity use. Within the project students can realize themselves as creative specialists. Performing the projec, students acquire creative abilities that can be used in future professional activities.

References

Abramova N.S., Vaganova O.I., Kutepova L.I. (2018). Development of educational and methodological support in the context of the implementation of information and communication technologies. Baltic Humanitarian Journal. 2018. t. 7. no. 2 (23). pp. 181-184. https://elibrary.ru/item.asp?id=35327269 (in Russian).

Arkhipova, M.V., Belova, E.E., Gavrikova, Y.A., Lyulyaeva, N.A., Shapiro, E.D. (2018). Blended learning in teaching EFL to different age groups (2018) Advances in Intelligent Systems and Computing, 622, pp. 380-386. DOI: 10.1007/978-3-319-75383-6_49

Chaikina Z.V., Shevchenko S.M., Mukhina M.V., Katkova O.V., Kutepova L.I. (2018). Electronic testing as a tool for optimizing the process of control over the results of educational training activities. Popkova E.G. (ed.) The Impact of Information on Modern Humans. Springer, 2018. Vol. 622, pp. 194-200. https://doi.org/10.1007/978-3-319-75383-6_25

Denysenko S.M. (2018). Application of quest technology in the professional training OF Bachelor of Publishing and Polygraphy in Higher School. Balkan Scientific Review 2018 No. 1 pp. 29-33.

Garina, E.P., Garin, A.P., Kuznetsov, V.P., Popkova, E.G., Potashnik, Y.S. (2018). Comparison of approaches to development of industrial production in the context of the development of a complex product(2018) Advances in Intelligent Systems and Computing, 622, pp. 422-431.DOI: 10.1007/978-3-319-75383-6_54

Ihnatenko H.V., Ihnatenko K.V. (2018). Formation of self-dependence as a professional ly-important personality trait of a future vocational education teacher by means of case-technology (2018) Humanitarian Balkan Research 2018. No. 1 pp. 40-42.

Ilyashenko L.K., Prokhorova M.P., Vaganova O.I., Smirnova Z.V., Aleshugina E.A. (2018). Managerial preparation of engineers with eyes of students. International Journal of Mechanical Engineering and Technology (IJMET) Volume 9, Issue 4, April 2018, pp.1080-1087.

Ilyashenko, LK; Gladkova, MN; Kutepov, MM; Vaganova, OI; Smirnova, ZV (2019a). Development of communicative competencies of students in the context of blended learning AMAZONIA INVESTIGA Vol. 8 Núm. 18: 313-322.

Ilyashenko, LK; Markova, SM; Mironov, AG; Vaganova, OI; Smirnova, ZV (2019b). Educational environment as a development resource for the learning process AMAZONIA INVESTIGA Vol. 8 Núm. 18: 303-312.

Kamenez, N., Vaganova, O., Smirnova, Z., Kutepova, L., Vinokurova, I. (2019). Development of content of educational programs of additional education for professor-teaching composition in organization of educational services of training with disability. AMAZONIA INVESTIGA Vol. 8 Núm. 18: 267-278.

Kutepov, M.M., Vaganova, O.I., & Trutanova, A.V. (2017). Possibilities of health-saving technologies in the formation of a healthy lifestyle. Baltic Humanitarian Journal, 6(3), 210-213. https://elibrary.ru/item.asp?id=30381912 (in Russian).

Lubov K. Ilyashenko, Zhanna V. Smirnova, Olga I. Vaganova, Elena A. Chelnokova and Svetlana N. Kaznacheeva, (2019). Methods of Conducting Practical Training on the Subject "Power Sources for Welding", International Journal of Mechanical Engineering and Technology, 10(02), 2019, pp. 908–917

Makhometa T.M., Tiahai I.M. (2018). The use of interactive learning in the process of preparing future math teachers. Balkan Scientific Review 2018 No. 1 pp. 48-52.

Markova S.M., Narcosiev A.K. (2018). Professional education of vocational school students. Vestnik of Minin University. Vol. 6, no. 3. P.3. DOI: 10.26795/2307-1281-2018-6-3-3.

Markova, SM; Zanfir, LN; Vaganova, OI; Smirnova, ZV; Tsyplakova, SA (2019). Department of educational process in conditions of implementation of interactive training of future engineers. AMAZONIA INVESTIGA Vol. 8 Núm. 18: 450-460

Myalkina E.V., Sedhyh E.P., Zhitkova V.A., Vaskina V.A., Isaykov O.I. (2018). University resource center as an element of social development of the region // Vestnik of Minin University. Vol. 6, no. 3. P. 1. DOI: 10.26795/2307-1281-2018-6-3-1.

Natalie V. Kamenez, Zhanna V. Smirnova, Olga I. Vaganova, Natalia V. Bystrova and Julia M. Tsarapkina, (2019). Development of Instructing Techniques in Professional Training,

International Journal of Mechanical Engineering and Technology, 10(02), 2019, pp. 899–907
Nikonova, NP; Vaganova, OI; Smimova, ZV; Bystrova, NV; Markova, SM (2019b). Providing partnerships and promotion of additional educational services. International journal of applied exercise physiology. 2019, Vol. 8 (2.1) pp. 347-355.
Nikonova, NP; Vaganova, OI; Smirnova, ZV; Chelnokova, EA; Kutepov, MM (2019a). Methodological support in partnerships with the institution of additional education and teachers. International journal of applied exercise physiology. 2019, Vol. 8 (2.1) pp. 339-346.
Sedykh, EP; Zanfir, LN; Vaganova, OI; Smirnova, ZV; Bulayeva, MN (2019). Use of training technology in the preparation of students of engineering specialties. AMAZONIA INVESTIGA Vol. 8 Núm. 18: 461-470.
Smirnova Zh.V., Krasikova O.G. (2018). Modern tools and technologies for assessing learning outcomes. Vestnik of Minin University. 2018. Vol. 6, no. 3. P. 9. DOI: 10.26795/2307-1281-2018-6-3-9.
Smirnova ZH.V., Vaganova O.I., Trutanova A.V. (2017). Final state certification as a way to comprehensive assessment of competences. Karelian Scientific Journal, 2017, vol. 6, no. 3(20), pp. 74-77., https://elibrary.ru/item.asp?id=30453035 (in Russian).
Smirnova, ZV; Kamenez, NV; Vaganova, OI; Kutepova, LI; Vezetiu, EV (2019). The experience of using the webinar in the preparation of engineering specialists AMAZONIA INVESTIGA Vol. 8 Núm. 18: 279-287.
Vaganova O.I., Ilyashenko L.K. (2018). The main directions of implementation technologies of student-centered education in high school. Vesknik of Minin University. vol. 6, no. 3. p.2 DOI: 10.26795 / 2307-1281-2018-6-3-2 (in Russian).
Vaganova, O. I., Smirnova, Zh. V., Markova, S. M., Chaikina, Zh. V., & Bulaeva, M. N. (2019). Organization of partnerships for additional educational services on the example of the interaction of the educational institution with the health and cultural centre. Perspektivy nauki i obrazovania – Perspectives of Science and Education, 39 (3), 500-514. doi: 10.32744/pse.2019.3.38
Zhytukhina K. P. (2017). Realization of the pedagogical condition for improving the process of formation of responsible attitude to future profession in students of pedagogical universities. Scientific Vector of the Balkans 2017 No. 1 pp.26-30